

Rahway Residential Rain Gardens Projec

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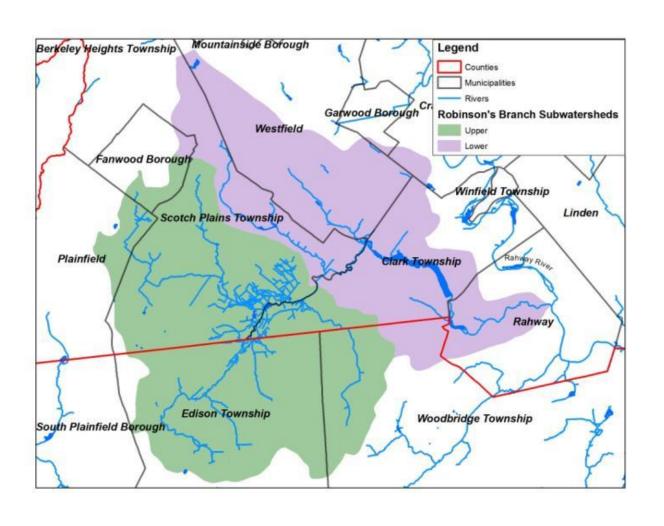


- Recruitment and Selection Process
- Design Process
- Installation Process

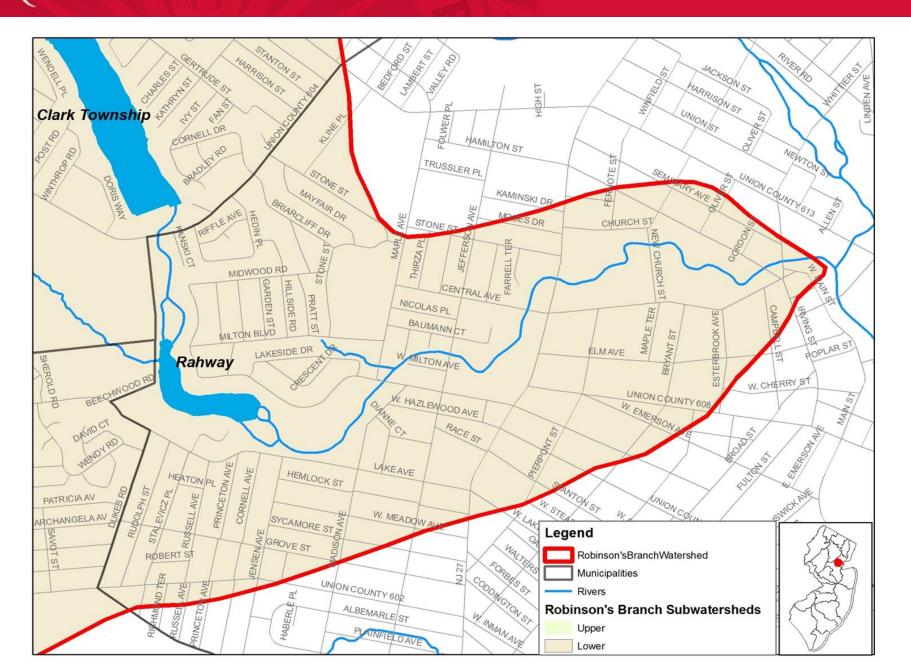
Robinson's Branch Watershed Implementation Project

- Funded by the NJDEP 319 h Nonpoint Source Pollution Reduction Program
- Impaired for fecal coliform and total phosphorus. Moderately impaired for macroinvertebrates.
- Flooding problems due to urban nature of watershed
- Objective 1: Disconnection of impervious surfaces and treatment of runoff from these surfaces
- Objective 2: Implementation of a stormwater source control program targeting homeowners

Robinson's Branch Watershed Restoration Project



- •22 mi² watershed
- •33 miles of river
- •Discharges to Rahway River
- •Over 80% urban
- •Separate storm drain system



Benefits

- Create rain gardens with curb appeal that enhance the existing aesthetics of a home.
- Sustainable landscaping that can help mitigate the effects of climate change.
- Concentrate a number of rain gardens in one neighborhood for:
 - Environmental benefits
 - Tours
 - Create community connection a "culture of sustainability"

A community of Rain Gardens







Create a "pre-existing condition"



concept illustration

• Create gardens "after the fact" – after development, that serve to increase the sense of a neighborhood's integration with the local environment – by making it seem as though the neighborhood developed around pre-existing natural features.

Rahway Rain Garden Project

Attention Rahway Residents:

For a limited time Rutgers Cooperative Extension is offering free **rain gardens** to Rahway residents.

- Rutgers and the City of Rahway are working on a grant funded project to improve flooding and pollution in the Robinson's Branch stream. The project includes building rain gardens on residential properties in Rahway.
- Rutgers will work with you to choose a rain garden design that will beautify your landscape. Homes need to be in the Robinson's Branch watershed to qualify.
- Selection and design will happen winter/early spring, 2013. Rain gardens will be installed from April through May of 2013.

What is a rain garden? A rain garden is a shallow landscaped depression that helps manage rain water runoff from hard surfaces such as driveways and rooftops. Rain gardens look just like regular gardens except they have special soils that allow rainwater to a



To sign up or for more information visit

www.water.rutgers.edu

or call

(732) 398-5274









Project Details

- Timeframe: January, 2013- June, 2015
- Partners: Rutgers WRP, Rutgers LA dept., Madison Elementary School, RCE of Union, City of Rahway
- Outreach- Social media, Press (including Rahway Review), mailing, school distribution, dashboard surveys.
- Online application
- 115 applications, 10 installed in 2013, 8 in 2015
- Rain garden size: 80-120 sq. ft.
- Challenges
 - finding a contractor, clay soil,
 time consuming legwork

Selection Process

- Targeted "connected homes" within watershed
- Online application with map
- Preliminary assessment by RCE
 - connection (driveway or roof)
 - trees
 - right of way concerns
 - adequate space
- Final selection sent design manual
- One time on-site meeting for design feedback, questions, etc.

Planning



Downspout directly connected to street via metal pipe. Depending on slope/survey, downspout can be disconnected along the pipe or at the downspout. Catch basin installed into garden to connect overflow back into pipe.

Planning



Multiple downspouts connect to one pipe out to street. I would prefer to not touch the pipe but rather build a garden along the curb cub (Minnesota Rain Garden) along with hardscaping/small retaining wall. But the pipe can be cut and a catch basin installed if



Rutgers Rain Garden Interactive Design Guide

Welcomel

This guide is intended to help you begin to envision your new rain garden.

The following pages will show you a variety of choices for layout, plants and hardscape materials.

Please fill out the form on the final page. Indicate choices and make plenty of notes so we can start to get an idea of what you like.

Based on the feedback you give us with this form, we will bring design ideas to a meeting with you at your home.

At this meeting we will customize and detail the concept designs for you and test their feasibility on the site within our budgets.

Note: At that time you may want to make changes to the design and materials which may require an additional investment from you. For example, if a more expensive stone type is desired (or in a larger quantity) you may need to purchase the material.

We look forward to your feedback and thank you for participating.





Plants



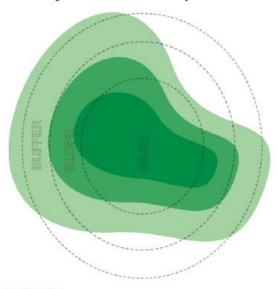
Design



Hardscape



Rahway Rain Garden templates- Natural Concept





Plan Layout

Section

Base Blue Lobelia Boneset





Slope Blue Mistflower, Floxglove Beardtongue Red-twig Dogwood, Sweetbay Magnolia, Virgina Rose









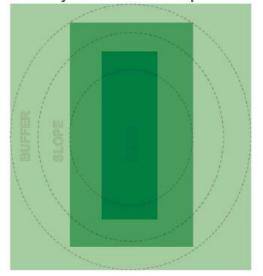
Buffer False Sunflower Spotted Horsemint





RUTGERS New Jersey Agricultural Experiment Station

Rahway Rain Garden templates- Structured Concept





Plan Layout Section

Buffer Options (for natural and structured concepts. There are a wide range of trees and shrubs available for this zone)



Spirea Japonica 'Goldmound'



Hydrangea Macrophylla 'All Summer Beauty'

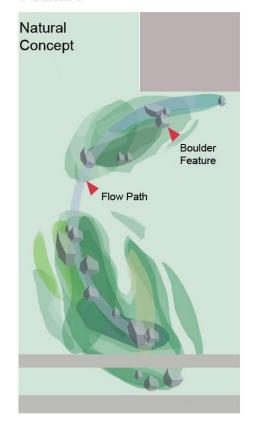


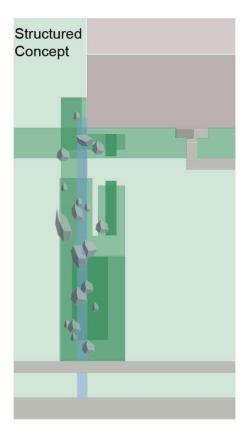
Fringe tree, Chionanthus virginicus



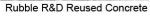
Dogwood, C. florida 'Cherokee Chief'

Feature









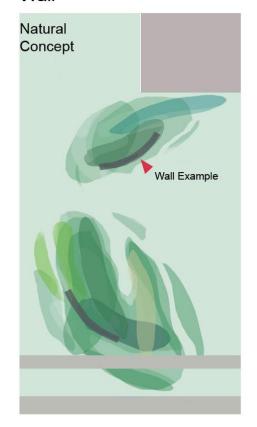


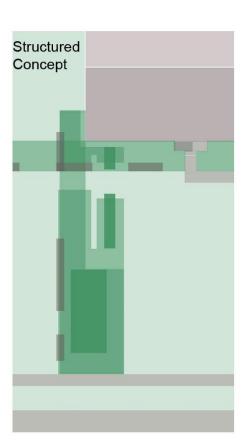






Wall











Rubble R&D Salvaged Stone



gardendrum.com Reused Concrete

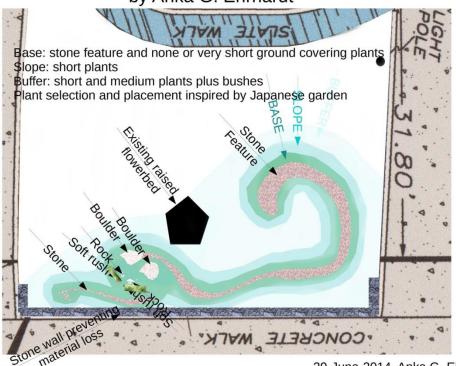


Rubble R&D Reused Concrete



1189 Jefferson Garden

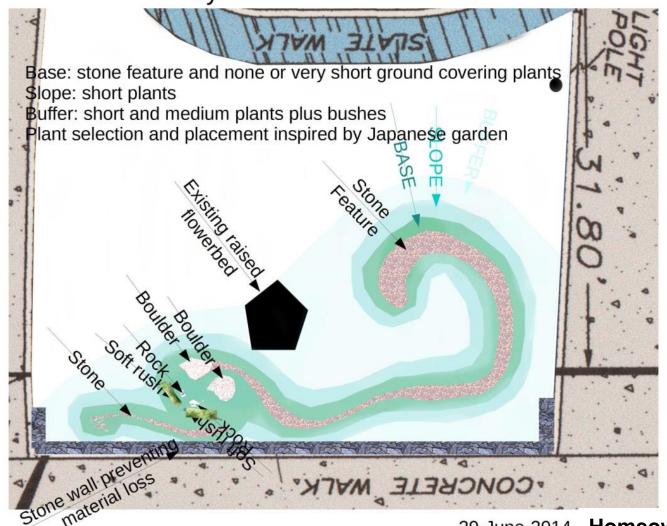
Circle choices and write in comments: -would really like design inspired by classical Japanese garden - snow during winter gets shoveled onto front yard Garden Form 2. Structured 3. Blend Write in comments/notes: Planting Layout 1. Natural (Masses) 2. Structured (Rows) 3. Blend Write in comments/notes: 2. Native/Ornamental Blend Plants Selection 1. Native Write in comments/notes: - tree-free design prefered Hardscape Selection 1. Edging Write in comments/notes: - walls needed to prevent material from sliding down to the sign 2. Salvaged Stone Hardscape Material: 3. Concrete - stone/re-used stone for features (round stones) Write in comments/notes: - for walls other materials could be ok 1. Outline/Border/Edge 2. Freeform/Interior Edge Hardscape Layout Write in comments/notes: - walls needed to prevent material from sliding down to the sic - hardscape feature combination of stone, rocks and boulders, arranged to hint at cat-shape (see attached sketch) RUTGERS New Jersey Agricultural Experiment Station Æ Design Idea Rain-garden for 1189 Jefferson Ave, Rahway by Anka G. Ehrhardt

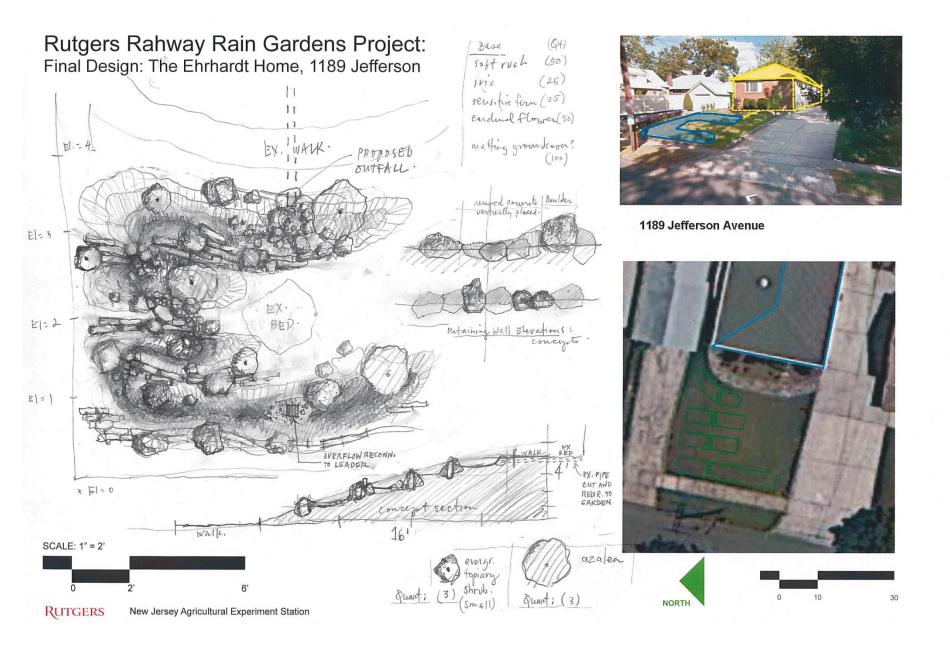


29-June-2014, Anka G. Ehrhard

1189 Jefferson Garden

Design Idea Rain-garden for 1189 Jefferson Ave, Rahway by Homeowner









Rutgers coordinates communication about the designs between homeowners and the contractor

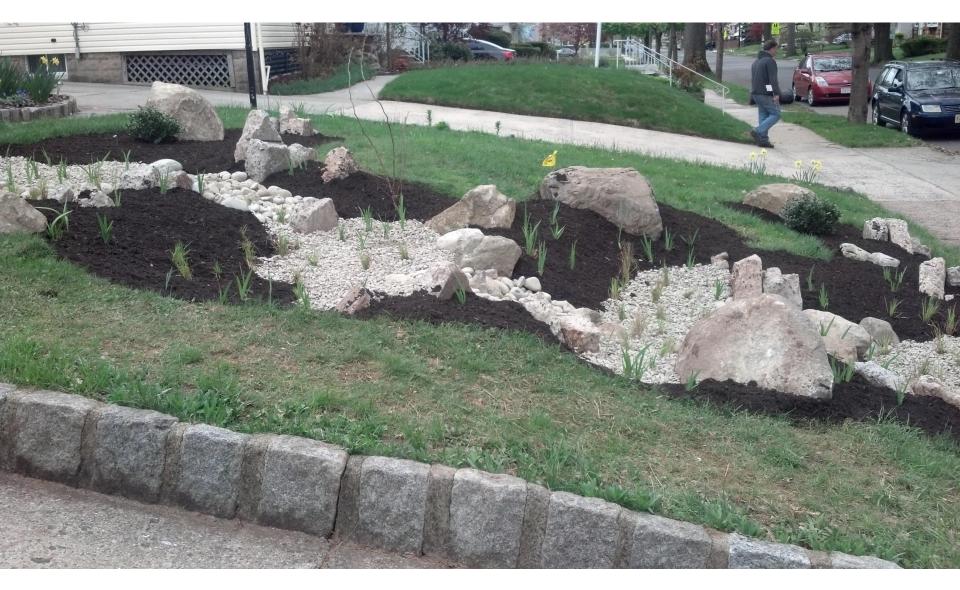
TGERS What's Going On Here?... A rain garden is being built! Rutgers Cooperative Extension and the City of Rahway are helping Rahway homeowners protect the Robinson's Branch stream (part of the Rahway River watershed) by installing rain gardens. When it rains, roof runoff from the house will flow into the rain garden instead of going to the stormdrain. The rain garden helps reduce rain water runoff and pollution in our watershed. Rain gardens also provide habitat for birds and butterflies. For more information call Rutgers Cooperative Extension of Union County at (732) 398-5274, or email bakacs@njaes.rutgers.edu. This project has been funded in part by the New Jersey Agricultural Experimental Station and by a grant from the New Jersey Department of Environmental Protection.

Temporary Signs during construction

1189 Jefferson Garden



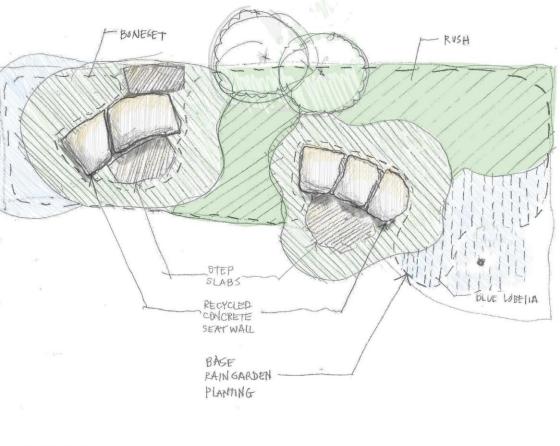
1189 Jefferson Garden



1189 Jefferson Garden



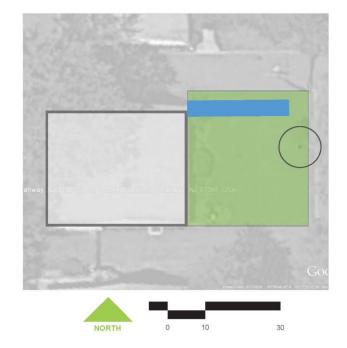
Rutgers Rahway Rain Gardens Project: Final Design: The Provda Home





1244 Briarcliff





Rutgers Rahway Rain Gardens Project: Final Design: The Provda Home







Rutgers Rahway Rain Gardens Project: Final Design: The Provda Home



Rutgers Rahway Rain Gardens Project:

Final Design: The Provda Home

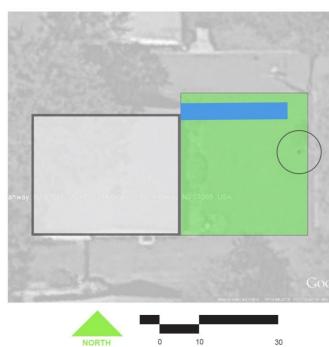










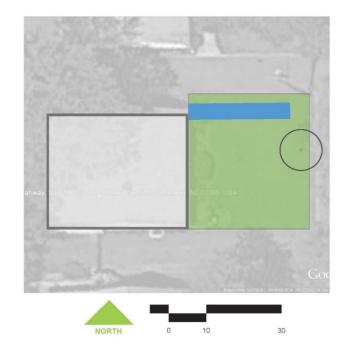






1244 Briarcliff











A "Professional Services" model of Grant Funded Extension Outreach:

- Follow the homeowner's wishes
- blending layout with existing beds
- matching plant material
- use of hardscape materials for immediate and long-term "structure" in the garden
- leaving out standard elements (grasses)







Encourage the homeowner to "own the design" by interacting with it over time with modifications, additions and subtractions







Rutgers











Rahway Rain Garden Project Maintenance Plan

Congratulations and thank you for participating in the Rahway Rain Garden Project! You are now the owner of a rain garden. Help us spread the word and educate other residents by showing off your rain garden to your friends and neighbors.

Take pictures of your rain garden as it evolves through the seasons. Share your pictures with us!

Rain gardens are LOW maintenance, but not NO maintenance. An overview of maintenance actions are listed below.

1. WATERING

Initially your rain garden should be watered right after planting and then 2-3 times per week. Since these gardens were installed in the fall, they should be watered until it gets cold and the plants are dormant. After the first year, the plants will be established and should only have to be watered during hot, extended dry spells.

2. FERTILIZING

Your rain garden should never need to be fertilized. Most of the plants are native to New Jersey and the plants should sustain themselves with the help of the organic material in the top soil.

3. WEEDING

Weeding out any unwanted plants will be important early in the garden's establishment. As the plants mature they will help to crowd out weeds. Make sure to remove weeds before they go to seed to prevent them from spreading. Adding mulch will also help suppress unwanted weeds.

4. MULCHING

Rain gardens will need to be mulched at least once a year. Once plants spread and are well established, less mulch will be needed in the rain garden. Triple shredded hardwood mulch with NO dye is preferred for the rain garden.

5. TRIMMING/ PRUNING

Leaving grasses tall in the winter provides interest in your garden. Cutting back grasses should be done at least once a year in the early spring. <u>A mower should only be used if it can be raised to at least 6 inches.</u> Otherwise use a string trimmer or hedge shears.

- a. Initial cutting can be done after the first few weeks of growth early Spring
- A second cutting can be completed, if needed, after ground nesting birds have hatched the next generation – usually near mid-May











Removing dead flower heads can be performed throughout the season, as it promotes additional blooming.

Pruning of woody shrubs will be necessary if the plant gets too large. Pruning can also be done to get rid of old growth and encourage new growth on your plants. Pruning should not be done between July 15th – October 15th, as it stimulates new growth that may not be able to withstand hard frosts in October.

6. OBSERVE FOR SIGNS OF ISSUES

Observe the rain garden during rain events and note any problems or successes. Watch for erosion. Early on, care for any plants that may uproot during large rain events.

7. CLEAN GUTTERS

It is important to clean gutters at least annually so that water can get to the rain garden. More frequent cleaning may be needed if you have large trees around your home.

For additional questions about maintaining your rain garden contact Michele Bakacs, Environmental and Resource Management with Rutgers Cooperative Extension of Union County at bakacs@njaes.rutgers.edu, (732) 398-5274 or Kyle Gourney with the Rutgers Cooperative Extension Water Resources Program at (848) 932-6716, kgourley@envsci.Rutgers.edu

Project Details:

Your rain garden was designed by the Rutgers Cooperative Extension Water Resources Program and Tobiah Horton and Richard Alomar, both Assistant Professors in Landscape Architecture. Funding for the Rahway Rain Garden Project is from a grant from the New Jersey Department of Environmental Protection. Project partners include Rutgers Cooperative Extension of Union County, Rutgers Water Resources Program, Rutgers University Department of Landscape Architecture, and the City of Rahway.

Resources and References:

The maintenance plan is based on the following resources:

Obropta, C., Sciarappa, W., Quinn V. (2006) Rain Garden. Fact Sheet #513. Rutgers NJAES Cooperative Extension. Available at http://njaes.rutgers.edu/pubs/publication.asp?pid=FS513

Rutgers Cooperative Extension Rain Garden Manual of New Jersey. Available at http://www.water.rutgers.edu/Rain_Gardens/RGWebsite/RainGardenManualofNJ.html

Join the 1000 Rain Garden in the Rahway River Watershed Facebook Page- at https://www.facebook.com/1000RainGardensProject

Cooperating Agencies: Rutgers, The State University of New Jersey, U.S. Department of Agriculture, and County Boards of Chosen Freeholders. Rutgers Cooperative Extension, a unit of the Rutgers New Jersey Agricultural Experiment Station, is an equal opportunity program provider and employer.

Iris versicolor Blue flag, Blue water iris





Spring/Summer Flower

Green Summer Foliage

Characteristics: Herbaceous, Perennial, Nonpersistent

Appearance:

Height - Up to 4 ft.

Flower Color - Blue or violet

Flowering Period - May through July

Habitat: Swamps, Marshes, and Wet Shores

Hydrology:

Indicator status - Obligate wetland

Salinity - Fresh to moderately brackish

Non-Tidal Regime - Regularly to permanently inundated up to 0.5 feet or saturated

Wildlife Benefits: Food for wildfowl, marsh birds, and persists as cover within a growing season under heavy grazing.

Distribution: Newfoundland to Manitoba, south to Virginia and Minnesota.

Eupatorium perfoliatum Common boneset







Late Summer Flower & Foliage

s Planted

Characteristics: herbaceous perennial

Appearance:

Height - 2 to 4 ft.

Spread -2 ft

Flower Color - white

Flowering Period - August through September

Habitat (Community): floodplain forest, prairies, wetlands, along river/pond edges, bogs, wildflower gardens or roadside ditches

Hydrology:

Indicator Status - facultative wetland

Drought Tolerance - none

Wildlife Benefits: food and habitat for butterflies, bees, moths and the swamp sparrow

Distribution: Eastern North America from Quebec south to Florida and west to Texas and Manitoba (USDA hardiness zones 2-10)

Next Steps

- * Adapt "Design Guide" as a stand-alone resource for homeowners
- * To compliment existing on-line guides, such as the NJ Rain Garden Manual (http://www.npsnj.org/pages/native plants_Rain_Gardens.html)
- * Rutgers could still provide design/engineering consulting services



Investigate Alternative Installation Modes

- to further encourage residential rain garden adoption
- to avoid high cost of professional contractors
- RCE design process with homeowner can be the same
- Build with homeowners (and kids!) potentially using a "rain garden rebate" program to reimburse a percentage of costs
- As neighborhood "barn-raising" activity Build community!
- Build with Volunteers
 - Green Teams
 - Garden Volunteers (Rahway Volunteers helps to maintain the Kiwanis Rain Garden)
- Build with the Extension (interns)
- Use for Workforce Training, e.g. YouthBuild
- *** Done with hand labor may take more time, but could be accomplished for +/- \$10/sf or less.

New Jersey Agricultural Experiment Station

Questions?

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